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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/396,715	09/15/1999	YU DONG TONG	5619-NEEC	7845

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EXAMINER

YILDIRIM, BEKIR L

ART UNIT

PAPER NUMBER

1764

16

DATE MAILED: 01/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/396,715

Applicant(s)
Tong

Examiner
Bekir L. Yildirim

Art Unit
1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Aug 1, 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission considered with Kaplan et al. (USP 4,842,716) and Stein et al. (USP 5,632,865).

The invention is directed to the heating of the phosphorous-sulfur compounds in the claims before contact with heat-transfer surfaces so as to inhibit fouling.

The phosphorous-sulfur compounds in the claims are well-known antifoulants for hydrocarbon conversion apparatus under elevated temperatures. In the paragraph bridging pages 3 and 4 of the specification the applicant admits this fact, by citing the reference teachings employing these antifoulants. The examiner reviewed the references and agrees with the applicant regarding the disclosure of the phosphorous-sulfur antifoulants. The claims then becomes those of "Jepson type", i.e. directed to the improvement over what is known.

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The alleged improvement over the prior art is presented in the first full paragraph of the disclosure, which is incorporated into the claims, namely the “thermal treatment”, i.e. the heating of the antifoulant.

Kaplan et al. confirms the admission by the applicant, by teaching the utility of the claimed antifoulants in inhibiting fouling on heat-exchange surfaces of hydrocarbon processing equipment, along with a corrosion inhibitor, which may function as neutralizer of antifoulants thus reducing corrosive tendencies thereof. See supra..

It is acknowledged that the applicant does not admit that the recited antifoulants are thermally treated prior to contacting the surfaces and Kaplan et al. does not disclose the thermal treatment *per se*..

Stein et al. teaches a method for injection of “aggressive liquid additives” into vapor-containing process lines and equipment, exemplified by those in hydrocarbon processing (which corresponds to heat transfer surfaces in the claims), wherein the “aggressive liquid additive” (defined as those that pose corrosion problems if contacted in liquid form), is introduced after being heated by heating means (i.e. “thermally treated”) (see col. 1, lines 12-18, col. 2, lines 5-10, 23-35, 44-52, col. 3, lines 1-5, 47-56).

It would have been obvious then to modify the admitted prior art teachings and/or the teachings of Kaplan et al. by preheating the antifoulant as suggested by Kaplan et al. since it was known, as explained by Kaplan et al. that the antifoulants themselves may pose corrosion threats

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and making them “aggressive liquid” as described by Stein, which threat is inhibited by the “thermal treatment” as taught by Stein.

Furthermore, it is notoriously well-known that antifoulants are often introduced with inert gases or liquids, such as nitrogen, or steam as recited in some of the instant claims, and in Kaplan et al. The introduction of antifoulant with steam prior to feed introduction itself would also constitute “thermal treatment”.

Response to Arguments

3. Applicant's arguments filed on 8/01/2001 have been fully considered but they are not persuasive.

The applicant argues that the suggestion to combine the references is not provided either by Kaplan or Stein, because Stein does not suggest “effective amount of thermally treated phosphorous-sulfur treated compound”. The examiner takes issue with the standard the applicant employs in determining the combinableness of the references. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case those with ordinary skill in the art, reviewing the two references placed on the wall, side-by-side, would see that Kaplan alerts the artisan to the corrosion

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problems the antifoulants may cause, thus refer to Stein discussing thermal treatment as a method to be employed against the deleterious effect, e.g. corrosion, by “aggressive liquid additives” such as those used as anti-corrosive and antifoulant agents. The artisan with ordinary skill would not need Stein to recite the exact “aggressive liquid” used by Kaplan in order to import the suggestion to heat the additive. Stein teaching is not directed to a particular additive but a general group defined by a characteristic, giving it the label “aggressive”. Even without Kaplan’s caution, one with ordinary skill would easily recognize phosphorous-sulfur as an aggressive additive. One of ordinary skill in the art is considered to have at least a B.S. degree, with additional education in the field and at least 5 years of practical experience working in the art; is aware of the state of the art as shown by the references of record, to include those cited by the applicant and the examiner (Esso Research & Engineering Co. v Kahn & Co., 183 USPQ 582 (1974)) and who is presumed to know something about the art apart from what the references alone teach In re Bode, 193 USPQ 12 (16) CCPA 1977); and who is motivated by economics to depart from the prior art to reduce costs consistent with desired product properties (In re Clinton, 188 USPQ 365 (367), CCPA 1976 and In re Thompson, 192 USPQ 275 (277), CCPA 1976).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bekir L. Yildirim whose telephone number is (703) 308-3586. The examiner can normally be reached on weekdays from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode, can be reached on (703) 308-4311. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-6078.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0611.

B.L.Y.
June 17, 2000


Bekir L. Yildirim
Primary Examiner